Market Information System for Major Agriculture Crops in Haryana

A

Synopsis

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INTRODUCTION

Marketing Information System is defined as a process of gathering, processing, storing and using information to make better marketing decisions and to improve marketing exchange **(Nickels, 1986)**. Lack of information is an entry barrier to both production and trade. Where farmers have had access to information, shifts in cropping patterns to higher value produce have been noted. In the area of trade, individuals find it difficult to begin trading without information, so reducing competition within markets. Market information is also an important component of early warning systems for food security as it can assist in identifying areas of possible shortage and can highlight whether prices are above or below normal seasonal trends.

Market information is an important facilitating function in the agriculture marketing system. It facilitates marketing decisions, regulates the competitive market process and simplifies marketing mechanisms. Market information is a means of increasing the efficiency of marketing system and promoting improved price formation. It is crucial to the farmers to make informed decisions about what to grow, when to harvest, to which market produce should be sent and whether or not to store it. Improved information should enable traders to move produce profitably from a surplus to a deficit market and to make decisions about the viability of carrying out storage where technically possible. At present, the information is disseminated through various media like radio, newspapers, blackboard display and public address system at market yards. The information provided by these methods is stale and does not help the farmers sufficiently in taking decisions in marketing their produce.

Information is critical to the social and economic activities that complete the development process. Developing economy has witnessed agricultural (green, white, yellow, blue and now rainbow), industrial and information technology revolutions. Good communication system and information system reinforce commitments to sustainable productivity. The Government of India has given more thrust on food and agriculture, information technology sectors towards achievement of economic reforms for achieving high growth rate in production **(Dhankar, 2003)**.

Bonnen has studied that the need for information increases with development and industrialization. Development leads to a specialization of functions and organization, which greatly increases the need for coordination and, thus, the social returns and demands for information. Development and industrialization, along with the high degree of uncertainty in the agricultural sector, increases the complexity of problems, required analysis and analytical procedures which increases the demand for information. Thus, it becomes necessary to establish a marketing information system (MIS) with the ability and qualified staff to collect and analyze data to derive useful information that can be used to formulate sound recommendations to policy makers. Farmers need information to deal with various problems confronting their farm operations: they need to decide what to produce and how much, and where to market in order to maximize their profits. Market

intermediaries, like middlemen and commission agents, need information to divert supplies from one market to another and to adjust their services and selling practices in order to maximize their returns.

The partial success of agricultural development programs in developing countries is often due to the lack of understanding by decision makers at all levels of the marketing links. Marketing is often conceptualized and understood only as a process of assembling produce in rural or wholesale markets. Thus, the process of improving development policies often depends on trial and error, and can be generally enhanced with more accurate information. On the other hand, notions about marketing that are wrong or based on half-truths are accumulated over the years and passed on from generation to generation as facts. The lack of market research results and information can be a major problem facing the augmentation of marketing efficiency because poor information increases market imperfection and results in inefficient and ineffective policies. The rapid growth in agricultural production and increased food system specialization in developing countries increases the demand for efficient marketing system.

Market information systems for agricultural crops

The farmers in the country are in dire need for reliable and timely market intelligence for a decision support system. In India, the traditional agricultural farming is rapidly being transformed into a commercial venture to cater to the needs of national and international consumers of fruits and vegetables. Inadequacy in the dissemination of accurate and timely market information, however, still remains a prime constraint for taking right decisions by the farmers, processors and traders. The Directorate of Marketing and Inspection (DMI), Ministry of Agriculture in collaboration with the National Informatics Center (NIC) initiated steps to establish an Agricultural Marketing Information System Network. This is likely to transform future agricultural growth in the context of global liberalization and changing food habits of the domestic population.

Rice is a monocot plants *Oryza sativa* (Asian rice) or *Oryza glaberrima* (African rice). As a cereal grain, it is the most widely consumed staple food for a large part of the world's human population, especially in Asia. It is the agricultural commodity with the third-highest worldwide production, after sugarcane and maize, according to data of FAOSTAT 2012.

Maize (*Zea mays L*) is one of the most versatile emerging crops having wider adaptability under varied agro-climatic conditions. Globally, maize is known as queen of cereals because it has the highest genetic yield potential among the cereals. It is cultivated on nearly 150 m ha in about 160 countries having wider diversity of soil, climate, biodiversity and management practices that contributes 36 % (782 m t) in the global grain production. In addition to staple food for human being and quality feed for animals, maize serves as a basic raw material as an ingredient to thousands of industrial products that includes starch, oil, protein, alcoholic beverages, food sweeteners, pharmaceutical, cosmetic, film, textile, gum, package and paper industries etc.

Mustard- Rapeseed group of crops is among the oldest cultivated plants in human civilization. It is a group of oilseed crops which assumes the significance in Indian national economy by

occupying the second position next to groundnut and is considered as a 'cash crop'. The estimated area, production and yield of rapeseed – mustard in the world was 30.74 million hectares (m ha), 59.93 million tons (MT) and 1950 kg/ha respectively, during 2009-10. Globally, India account for % and 10.7% of the total acreage and production (USDA). Mustard rapeseed is grown in more than 50 countries in Asia, Europe, America and Australia. Among the major rapeseed growing countries in the world, China and India together accounted for 46 percent of total area. India is second largest in area under mustard after China.

Cotton is a soft, fluffy staple fiber that grows in a boll, or protective capsule, around the seeds of cotton plants of the genus *Gossypium* in the family of *Malvaceae*. The fiber is almost pure cellulose. Under natural conditions, the cotton bolls will tend to increase the dispersion of the seeds. The plant is a shrub native to tropical and subtropical regions around the world, including the Americas, Africa, and India. The greatest diversity of wild cotton species is found in Mexico, followed by Australia and Africa. Cotton was independently domesticated in the Old and New Worlds. The fiber is most often spun into yarn or thread and used to make a soft, breathable textile. The use of cotton for fabric is known to date to prehistoric times; fragments of cotton fabric dated from 5000 BC have been excavated in Mexico and the Indus Valley Civilization (modern-day Pakistan and some parts of India). Although cultivated since antiquity, it was the invention of the cotton gin that lowered the cost of production that led to its widespread use, and it is the most widely used natural fiber cloth in clothing today. Current estimates for world production are about 25 million tonnes or 110 million bales annually, accounting for 2.5% of the world's arable land. China is the world's largest producer of cotton, but most of this is used domestically. The United States has been the largest exporter for many years. In the United States, cotton is usually measured in bales, which measure approximately 0.48 cubic metres (17 cubic feet) and weigh 226.8 kilograms (500 pounds). There are four commercially grown species of cotton, all domesticated in antiquity, *Gossypium hirsutum* – upland cotton, native to Central America, Mexico, the Caribbean and southern Florida, (90% of world production), *Gossypium barbadense* – known as extra-long staple cotton, native to tropical South America (8% of world production), *Gossypium arboreum* – tree cotton, native to India and Pakistan (less than 2%) and *Gossypium herbaceum* – Levant cotton, native to southern Africa and the Arabian Peninsula (less than 2%).

Review of Literature

Rahman (2003) revealed that the existing service capability of Market Information System was very poor in Bangladesh. The limitations were non availability of required information, unreliable and untimely availability of information and lack of awareness among farmers with respect to the use of available information.

Kiresur et al. (2001) observed the Decision support systems (DSS) in forecasting of oilseeds scenario in India through a system dynamic model. They observed that the oilseeds scenario is rapidly changing, the forecasting needs a dynamic approach to account for the complex nature of the

agricultural sector and it's backward and forward linkages with other sectors of the economy. The system dynamic approach was found to fill the gap. System dynamics method is a computer aided structural modelling technique in which time varying effects can be explicitly considered. The DSS projected demand – supply gap of about two million tonnes of edible oil by 2010 AD. The simulated scenario forecasted demand for 15 million tonnes of edible oils leaving a net gap of about 2.7 MT in domestic availability of edible oils by 2010 AD. The review of simulation results suggested that the model developed can be successfully used for strategic planning as the simulated data gave close resemblance with the existing system.

Rahman (2003) explored that the growers received low prices in Bangladesh because of lack of market information which resulted in wide inter-market price variation. Improvement of agricultural market information services was necessary for domestic market efficiency and to integrate domestic agricultural market with regional and international market for sustainable development of agriculture sector and to ensure country's long run food security.

John (2006) focused on bilateral exports from less developed countries (LDCs) to the United States and examined how this increasing economic interconnection impacted the level of democracy in the exporting country. Using a factor-endowment set-up I model the process for two periods as one that is represented by two simultaneous equations. The first equation specifies how the amount of exports depends on past values of democracy. The second equation showed that the development of democracy depended on exports today as the gains from trade in the LDC accrued to the abundant factor, labour, who use the gains to work to increase the level of democracy. To test this model empirically used a two –stage least squares fixed effects estimator and the results indicated robust support for the theory that argue that the effect of globalization on democracy was marginal and not a revolutionary effect.

Newey and Imbens (2004) reported the identification and inference in a nonparametric structural model with instrumental variables and non-additive errors. They allowed for non-additive errors because the unobserved heterogeneity in marginal returns that often motivates concerns about endogeneity of choices required objective functions that are non-additive in observed and unobserved components. They formulated several independence and monotonicity conditions that were sufficient for identification of a number of objects of interest, including the average conditional response, the average structural function, as well as the full structural response function. For inference they proposed a two-step series estimator. The first step consisted of estimating the conditional distribution of the endogenous regressor given the instrument. In the second step the estimated conditional distribution function was used as a regressor in a non-linear control function approach. They established rates of convergence, asymptotic normality, and gave a consistent asymptotic variance estimator.

Pratibha et al. (2012) studied that Central India is endowed with rich heritage of NTFPs including gum yielding plants which constitute an important source of livelihood to the forest

dependent communities. Trade in natural gums and resins is mostly in the informal sector and problems like access to proper markets, trade volume, variation and fluctuations in prices over regions have been there. A Market Information Service (MIS) project has been on-going in SFRI whose goal is to provide reliable market information for long term planning and to assist rural communities in marketing NTFPs (including gums) through informed decisions for past 12 years. Periodic market information is collected from Market data collection centers which were set up in different zones of the states. A conceptual framework was designed describing inflow-outflow of market information. Computerized MIS database software using standardized database management system is being maintained. The data collected over a period of twelve years from various markets ranging from national to district level revealed price variations within same market levels and across different levels. On the basis of the data collected price trends for various gums yielding species were drawn indicating the direction of price trend as high, low and medium. The marketing information service project has been quite successful as it has succeeded in bringing the information gap.

Sidhu et al. (2008) analysed a simultaneous (four) equation model to estimate the contribution of institutional credit towards use of production inputs, private investments and agricultural growth. The study revealed that supply of production credit doubled and that of investment credit increased by about 80 per cent during the period 2001-02 to 2003-04. The relationship between use of variable inputs and production credit disbursement was found to be highly significant. A similar relationship prevailed between private capital formation and investment credit. Thus results have further exhibited significant and positive impact of capital investments on productivity with elasticity of 1.02. It, therefore, becomes imperative that first the demand for agricultural credit in each state/region be assessed, depending on crop patterns and current inputs and capital requirements in relation to targeted output growth-rate and then, policy framework should be put in place to meet those requirements, instead of increasing the credit supply uniformly across the board in all the states/ regions of the country. Such a policy sometimes proves counterproductive and that appears to have happened in the Punjab agriculture.

Keeping in views the above facts in mind the present study will be under taken with the following objectives:

1. To study existing market information system for major agricultural crops in Haryana.
2. To identify the pattern and extent of dissemination and utilization of existing formal information by stakeholders.
3. To estimate the price forecasts and long term relationship in pr ices among domestic markets.

TECHNICAL PROGRAMME OF WORK/RESEARCH METHODOLOGY

Selection of study area

Haryana has 284 regulated markets. One district with maximum area for each crop will be selected purposively. Area will be selected on the basis of highest area under production.

From each selected district five regulated markets will be selected randomly. 15 farmers from each regulated market area and 10 traders from each regulated market will be selected for the study. Thus, a total sample of 300 farmers will be selected.

Collection of data

As per the set objectives, the data from Primary as well as secondary sources will be selected. The primary data from sample farmers, traders and officials of regulated markets will be selected by personal interview method by using pre -tested structured schedule of the year 2020-21. The time series data on area, production, rainfall, arrivals, prices, etc. will be collected for secondary sources.

Analytical Procedure

In order to understand the market information system for agricultural commodities, both tabular and econometric model will be applied to analyze the data of the study.

Tabular Analysis

To study of the nature, extent, sources, utilization and expectations of market information system by farmers, traders and officials with averages, percentages, etc. will be calculated ARIMA model will be developed for price forecasts of major agricultural crops in Haryana. The price integration in different market for each selected crop will be tested by computing simple bivariate correlation (Basu and Dinda 2003).

Limitation of study

This study has certain limitations. The collection of data through field survey proved to be a hard experience. However, every effort will be taken to persuading the respondents to deliver the truth. The area included in this study for detailed investigati on is limited to the selected districts because it is not possible to study the whole state in limited time period. The study will be the usual limitation of time and resources encountered by a research student. However, the finding of the study will be very useful in understanding the role of marker information system in major agricultural crops in Haryana.

Chapterization of the study

In order to present the study in effective manners, the study will be divided into five parts:

Chapter 1:- Introduction

Chapter 2:- Review of Literature

Chapter 3:- Methodology and basic Concepts

Chapter 4:- Results and Discussion

Chapter 5:- Summary and Suggestions

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